INDEX.

ILLUSTRATIONS.

A

Air pump governor 233
Air ship, Morgan's 6
Alarm, fire, West's 196
Alarm for clock 35
Ammunition case 99
Anchors, attachment for 211
Aqueduct, Roman, Nimes 781
Arch, Roman, Reims 561
Armadillo, dwarf 375
Attraction, capillary 345

B

Bag holder 274
Bag holder, Fischer's 290
Bakery, field 246
Ball ejector, Calder's 238
Ball and resonator 105
Bait, catching 366
Barrel head, Boekler's 6
Basin apparatus 191
Bed, invalid, Crosby 307
Bell cord coupling 18
Bell, electric, Stocker's 114
Belt stretcher 197
Belt tightener, Bowman's 277
Benbow, guns of 118
Binding for books 18
Bird of paradise 278
Bit, bridle 181
Boat, life 60
Boat, life, Aniello's 93
Boiler, steam 195
Boiler, steam, Gentry's 89
Boiler, steam, Leighthan's 90
Boilers, pipe coupling 116
Bolt for bone block 343
Booth, James C 329
Blasting pug, Winder's 102
Brake block, Posson's 164
Brick handling apparatus 35
Bridle bit 181
Bridge building, Penn. R.R. 81
Bridge, draw, largest 286
Bridge, Harlem River 95
Bridge, high span, novel 303
Bridge, Poughkeepsie 63
Brush, paint, bridle 277
Brush, tooth, novel 300
Buckle, suspender 230
Building fronts 300
Buoy, self-luminous 34
Butter tub, Howe's 343
Butterflies, preparation 297
Button, collar or cuff 164

C

Cable grip, Carr's 322
Cabinet, powder and shot 339
Camphor, movements of 329
Canal, Panama, locks of 106
Canopy for chairs 376
Car-axle box 35
Car coupling, Brown's 131
Car coupling, Dawson's 149
Car coupling, Reed's 196
Car coupling, Rutledge's 329
Car coupling, Sampson's 322
Car coupling, Wineland's 228
Car couplings, English 262
Car coupling, Collins' 397
Car fan 287
Car heater, Wardle's 281
Car heating apparatus 6
Car, railway, Nichoff's 265
Car replacer, Holliday's 116
Carbon dioxide absorption 705
Cap shield for cartridges 243
Capitol building, Albany 143
Carriage, electric 82
Carriage, steam, Vivot's 295
Cartridge loader, Deven's 243, 255
Cattle, collar for 267
Ceiling of capitol 148
Chair and swing, Bastian's 356
Chair hammock 372
Chair, life preserving 340
Chair, out-of-door 116
Channels, New York bay 84
Check row attachment 325
Chimney cowl 370
Chiamydosaurus 715
Circuit closer, electric 114
City of New York, steamer 226
Clamp, Hathaway's 330
Clasp, Lewis' 276
Cleat, Hawley's 67
Clock, alarm, new 35
Cloth cutter, Ries' 307
Clothes frame, Burgess' 83
Cobra, the 29
Cohesion of lead 163
Collar button 164
Collar for cattle 267
Comet, South African 217
Commutator for electric motor 325
Copy holder, Maas' 307
Corliss, George H 143
Copperhead, the 103
Cot, folding, Porter's 403
Counter, Harding's 83
Coupling, car, Brown's 131
Coupling, car, Dawson's 149
Coupling, car, Collins' 397
Coupling, car, Reed's 196
Coupling, car, Rutledge's 329
Coupling, car, Sampson's 322
Coupling, car, Wineland's 228
Coupling, pipe 116
Coupling, thill, Knapp's 91
Couplings, car, English 262
Courier, ss., engines of 142
Cowl, chimney 370
Crane, wharf, 12-ton 275
Crane, 25-ton 19
Crematory, Pere la Chaise 130
Cruiser Irene 279
Cuff button 164

D

Dessert experiment 201
Desk, calligraph 274
Dogs, field prize 327
Door closer, Rodecap's 213
Door fastener, Kendall's 243
Door opener, electric 127
Diamagnetism 314
Draught equalizer, Fell's 211
Dredger 79
Dredging sloop 84
Drill, hand, for miners 242
Drilling machine 259
Dynamo, experiments on 235
Dynamo for ss. Victoria 41
Dynamo, principle of 244
Dynamos, driving gear for 6

E

Eagle, sea, Pallas' 155
Egg, ostrich, explosion of 249
Electric bell, Stocker's 114
Electric carriage 82
Electric circuit closer 114
Electric door opener 127
Electric light on ship 114
Electric lighting ships 41
Electric motor, simple 195
Electric shoe blackener 127
Electric speed indicator 239
Electric stove 127
Electric typewriter 73
Electricity, static, experim 308
Electro-magnet, experiments 214
Electrolysis of water 23
Elevator, hydraulic 6
Elevators, hydraulic 98
Engine, Corliss, 2,500 h. p 342
Engine, pumping 4
Engine, rotary 280
Engine, steam 297
Engines, hoisting 205
Engines of Vesuvius 313
Engines, triple, of ss. Courier 142
Exhibition, French, 1889 150
Experiments, Foucault's 214
Experiments, scientific 201

F

Fan for cars 287
Fastening for shoe laces 243
Faucet, Rodman's 51
Fence and fence post 370
Fender, carriage, Rogers & Stean's 402
Fender spar 196
Ferrule for fishing reels 6
Ferrule Hawley's 18
Filter, Davis' 274
Fire alarm, West's 196
Fire escape 372
Fire extinguisher, Durant's 82
Fire extinguisher for cars 7
Floor handle, Mason's 31
Food laboratory, Goshen 207
Force, centrifugal 200
Forging machine, Abbe 28
Foundation, repairing 191
Fruit jar, John's 291

G

Garment protector 260
Garments, renovating device 229
Gas, natural, burning 206
Gas wells, Fort Scott 25
Gates, Berning's 223
Gate, Hotcher's 292
Gate, improved 291
Gauge, extension 195
Gauge, saw, Nixon's 67
Gauge water 64
Gear, driving, for dynamos 6
Gear for vehicles 66
Geography, teaching 274
Goat, newly discovered 263
Gorilla, the 125
Governor air pump 233
Grain weigher, Morris' 217
Grain weighing machine 137
Grape seed extractor 324
Grate, Dunning's 89
Grate, furnace, new 1
Gray, Asa 87
Grinding machine, Comstock's 131
Grubber, improved 330
Guard-rail for wheels 51
Gunboats, U. S., launch of 267
Guns of the Benbow 118

H

Harbor, New York, improvem'ts 79
Hauling engines, endless rope 226
Haupt, Lewis M 119
Hay stacker, Hienlen's 211
Hay unloader and stacker 164
Hayden, F. V 9
Heater car, Wardle's 281
Heating bodies in comp. air 183
Hinge, Beer's 340
Hoisting machinery 2391
Holly Manufacturing Co 2
Hoof expander 373
Horse detacher 196
Horseshoe, Howell's 259
Horseshoe pad 67
Hotel, Brighton Beach 213
House, artistic, cheap 189
House, country 265

I

Ice creeper and skate 98
Inclinometer 131
Induction, magnetic 293
Irene, Cruiser 279
Ironclad Italia 319

K

Kites, Chinese 185
Knapsack, Merriman's 194
Knife grinder, Comstock's 131

L

Lantern, magic, portable 291
Ladder step, Whitley's 211
Lamp, night 243
Lamp, pneumatic 190
Lasting tool, Jacques' 334
Lathe engine 195
Laws of Newton, appar 137
Lead, cohesion of 163
Level, spirit 131
Lever and ratchet mechanism 32
Lick, James 165
Life boat 60
Life boat, Aniello's 93
Life boat with oil bag 405
Lightning, remarkable escape 295
Lizard, horned 149
Lock, alarm 227
Lock, nut, new 213
Lock, nut, Rennie's 326
Lock, nut, Vaughan's 356
Locks of Panama canal 106
Locomotive, postal, service 26
Locomotives, collision of 322

M

Magic, Indian 327
Magnet, cannon, King's 15
Magnet for electro-motor 220
Mantel, sheet metal 35
Mastodon 30
McCartney, Daniel 278
Meridian instrument 162
Meter, water, siphon 13
Military appliances 246
Mill, paint 183
Monkey, Cuban 71
Mortising machine, attachment 8
Motor, electric, simple 195
Motor, thermo, Hargreaves 134
Motor, windmill 258
Mountains, Russian 358
Mower, lawn, new 211
Muchage bottle, Pearl 300
Music chart, Mason's 34, 323

N

Nail tongs 67
Newton's laws, apparat 137
Nut lock, new 213
Nut lock, Rennie's 290
Nut lock, Vaughan's 356

O

Oar and oar lock 356
Observatory, Lick 159, 367
Oil bag at entrance to port 406
Oil distributor, Hazard's 226
Okonite wire, testing 115
Oracle, magnetic 5
Ore apparatus, to examine 261

P

Paddle belt, Silaby's 291
Panama canal locks 106
Paint brush bridle 277
Paint mill 183
"Pedal point" mechanism 402
Phonopiez, telegraphy 180
Photography, bectic 406
Physical and chemical change 281
Piano, grand, Mason & Hamlin 402
Pictures, shadow 120
Pipe coupling 116
Pipe coverings 98
Pipe cutter, simple 66
Piston ring packing 227
Plate straightening machine 294
Plows, attachment for 227
Press, copying, simple 89
Press, printing, Coie's 292
Presses, hand and power 98
Pressure, atmospheric 201
Pruning implement 217
Pump, La Point's 88
Puzzle, novel 29

Q

Quilter, Davis' 181

R

Rail loading machine 23
Rail pad, improved 340
Railroad tie, Hawley's 210
Railroad wagon 182
Railway car, Nichoff's 265
Railway rail chair and tie 51
Railway wreck 99
Ratchet and lever mechanism 32
Rattlesnake, H. M. S 283
Register, hot air 307
Residence 371
Residence, suburban 265
Resonators 115

S

Saw gauge, Nixon's 67
Saw gummer, Romer's 354
Saw holder, Slater's 307
Saw table adjuster 200
Sawing machine, Frank's 223
Scale, counter, new 307
Scale, pocket, Watt's 213
Scale weighing, Thomson's 149
Scientific app., manufacture 193
Scissors and file 67
Seed tester, Goeta's 51
Shadow pictures 120
Sheep, African 55
Shelves, movable, Comfort's 19
Shingling gauge 370
Ship, air, Morgan's 6
Ship of war Texas 263
Ship provided with oil bags 406
Shoe blackener, electric 127
Signal, block, Peterson's 339
Signal, railway, Rathmann's 403
Signal station 247
Silver, Thomas 311
Skate and ice creeper 98
Sleeve stay, Nichols' 6
Sleigh knee, Hennessy's 228
Snow shovel, rotary 371
Sound, re-enforcement of 205
Spark arrester 259
Spectroscope, Lick observatory 374
Speed indicator, electric 239
Spindles, banding 370
Spring for vehicles 229
Stable at Babylon 139
Stand to show goods 144
Steam boiler, feed 195
Steam boiler, Gentry's 89
Steam boiler, Leighthan's 90
Steam carriage, Vivot's 295
Steam engine 297
Steam tricycle 103
Steamer City of New York 226
Steering apparatus 226
Steering gear, Rushton's 371
Store and stable 369
Stove block, new 102
Stove, electric 127
Stringer, Mason & Hamlin 402
Stud, collar 164
Stub holder, check book 197
Stump puller, simple 347
Suspender buckle 230
Switch, portable 116
Switch, railway 325
Switch, railway, Brown's 194
Switch, stand and signal 370
Syracuse Malleable Iron Co 47

T

Table for printing press 340
Tapir, young 199
Telegraph, military 246
Telegraphy, phonopiez 180
Telescope, Lick observatory 367
Tension device for looms 228
Tent, folding 200
Tether, stock 260
Texas, war ship 251
Thermo-motor, Hargreaves 134
Thill coupling, Knapp's 91
Ticket, railroad, holder 243
Tie, chair and fish plate 291
Tie, railroad, Hawley's 210
Tie, railway, metallic 195
Toboggan slides 358
Toilet implement 67
Toilet stand, Lowrie's 329
Tongs, nail 67
Tooth brush, novel 300
Torpedo boat Rattlesnake 283
Torpedo boat Waddington 310
Tower, the Eiffel 150
Toy, scientific 5
Transpianter, Coon's 287
Trap, animal, Maxley's 213
Trap for animals 288
Traveling in Sierra Leone 306
Tricycle, Fries 103
Tricycle, steam 102
Truss, Poughkeepsie bridge 70
Tub, butter, Howe's 343
Tubes, spirally welded 277
Turning tools 276
Twine holder, Hill's 373
Type writer, electric 73
Type writer, Morris 54

U

Umbromania 120

V

Valve plugs, truing 108
Valve, throttle device 217
Vase, Pascal's 73
Vehicle, improved 66
Vehicle wheels, guard rail for 51
Ventilator, Werner's 196
Ventilator, window 373
Vest protector 260

W

Wagon, farm and road 19
Wagon railroad 182
War ship Texas 251
Washer, self-oiling 106
Watches, non-magnetic 242
Water closet box 66
Water, decomposition of 205
Water gauge 66
Watt, James, birthplace 117
Weather strip, Rankin's 35
Well, artesian, Paris 354
Windmill motor 258
Window sill, fireproof 46
Window ventilator 372
Wires and cables, manufacture 111
Wrench, gas pipe 19
"Wrest pin" mode of stringing 402

Y

Yoke, neck, fastening 242

MISCELLANY.

Figures preceded by a *star* (*) refer to illustrated articles.

A

Accidents, appliances to prevent 401
Acid, formic, secretion 57
Age, old, characteristics 349
Agnew, Dr. Cornelius R 257
Air compressed, power 116
Air pump governor 233
Air, pure, indicator 57
Air, respired, poison in 179
Air ship, Morgan's *6
Alarm, fire, West's *196
Alarm for clocks *35
Alarm lock, Baumann's *227
Alcohol 366
Alcoholism, discussion 336
Alloy, curious 344
Alloys 304
Alloys, facts relative to 232
Almanac, Chinese 179
Almadina, new gum 277
Alum baking powders 138
Aluminum 268, 280
Aluminum bronze 211, 280
Aluminum in plants 116
Aluminum manufacture 80
Aluminum plating 309
Armadillo, dwarf *375
Amalgam, liquid 33
America, South, trade of 266
Ammonia in distilled water 274
Ammunition case *99
Amusements scientific *201
Anchor, storm, novel 309
Anchors, attachment for *211
Animal, a queer 238
Animal sympathy 262
Annealing small tools 356
Antimony salt, De Haen's 337
Antipyrin in sea sickness 3, 201
Anthropology, congress of 384
Ants and spiders, aged 62
Ants, habits of 153
Apantiesis 104
Aphangescope, large 149
Appliances for trainmen's safety 242
Apprentices, past and present 32
Aproxsexie 195
Aqueduct, Roman, Nimes *231
Armor plates and concrete 358
Artillery, heavy 260
Ash and cinderings *96
Asbestos for filtration 322
Association, American 388
Asteroids, new 81
Astronomers, Lick observatory 80
Astronomy, fabulous 343, 360
Atlanta, the 114
Attraction, capillary, experim *345

B

Baby, Edison's 395
Bacteriology, usefulness 16
Bag holder, Fischer's *290
Bag holder, new *274
Bags, grain 227
Baird, Prof., generosity of 209
Bait, catching *366
Baking powders, alum 133
Bale ejector for presses *226
Balsam, electrified 106
Bank, savings, Carnegie 330
Barrel head, Boekler's *6
Bary, Heinrich A. de 197
Bath apparatus, portable *131
Battery, storage 102
Batteries, storage 184
Beach, pebble 360
Bedbugs, remedy for 272
Bed, invalid, Crosby *307
Beef, blood and bones 276
Beggary, how to abolish 147
Bell cord coupling *18
Bell electric *114
Belt stretcher *197
Belt tightener, Bowman's *227
Benbow, guns of the *118
Benzine, look out for 176
Bergh, Henry 176
Bessels, Dr. Emil 305
Billiousness, remedy for 72
Bird of paradise *278
Birds' nest, steel 155
Bird's wings, looking of 155
Birds, distribution of 360
Birds, lost species of 72
Bit, bridle *181
Bite, human *247
Blacking, liquid 312
Blasting pug, Wineder's *168
Blasting, sand 130
Blisters on albumen paper 49
Blizzard, great, of March 175
Blizzard of March *178
Blizzard, suggestions of 197
Blizzard, the great 200
Blood, beef and bones 276
Blood stains, to identify 328
Bloxam, Charles L 23
Blow holes 45
Boat, life, Aniello's *93
Boat, life, Lockesly's *95
Boat, torpedo, Nordenfelt 26
Boat, torpedo, Rattlesnake *283
Boats, torpedo, concealment of 33
Boats, torpedo, land 30
Boat, torpedo, in a gale 2
Boiler for cooking feed *195
Boiler, steam, Gentry's *89
Boiler, steam, Leighthan's *90
Boilers, kitchen, pipe coupling *116
Boils, treatment 149
Bolt, Murdoch's *345
Bookbinding, method 146
Boomerang, mystery of the 198
Booth, James C *329
Bottles, paper 197
Boy, don't undervalue 352
Brake block, Posson's *164
Brandy industry, secrets 211
Brazing and welding 49
Breath, human 224
Breech-loaders, system 242
Brick handling apparatus *35
Bricks, effect of atmosphere 37
Bricklayers in frosty weather 98
Bridge, Arthur Kill *259
Bridge, a channel 10
Bridge building, Penn. R.R. *81
Bridge, Harlem River *101
Bridge, high span, novel *303
Bridge, Poughkeepsie *70
Bridge travel, N. Y. and B'klyn 7
Bridge, railway, noise on 246
Bridle bit *181
Britons, early 22
Bronze, aluminum 309
Bronze tests 211
Brush, tooth, novel *300
Brushes, paint, clamp for *227
Buckle, suspender *230
Buffalo, last herd of 106
Bugs, sheep 167
Builders, notice to 255
Building fronts *200
Building material, fire proof 50
Bullets for small bore rifles 200
Buoy, self-luminous *34
Bushing, Babbitt metal 65
Business, how affected 179
Butter, artificial, qualities 16
Butter, colored 216
Butter tub, Howe's *343
Butterflies, preparation *297
Butternut wood 197
Button, collar or cuff *164

C

Cable grip, Carr's *322
Cable roads in England 171
Cabinet, powder and shot *339
Calcimine, how colored 147
Calcutta, black hole of 226
Camera, pinhole 131
Camphor, motions of *329
Canal, Panama 106
Canal, Panama, locks of *106
Canal, Panama, ship railway 80
Canal, ship, Manchester 402
Canal works, Kioto-Fu 273
Canals or ship railways 132
Candy-making hypocrites 135
Cannon ball in therapeutics 5
Cannon, heavy, abroad 114
Cannon magnet, King's *15
Canopy device for chairs *376
Cap shield for cartridges *243
Capitol building, Albany *143
Car axle box *35
Car coupling, Brown's *131
Car coupling, Collins' *397
Car coupling, Dawson's *149
Car coupling, Reed's *196
Car coupling, Rutledge's *329
Car coupling, Sampson's *322
Car coupling, Wineland's *228
Car couplings, English *262
Car fan *287
Car heater, Wardle's *281
Car heating apparatus *6
Car heating by steam 230
Car, railway, Nichoff's *281
Car replacer *116
Car stoves 176
Car, street, electric, Julien 32
Cars, freight, 6-wheel trucks *145
Cars, steam heating 83
Carriages, wheel fender for *403
Carbon dioxide, absorption *205
Carbon, electric energy from 32
Carbons for arc lamps 25
Carbuncles, treatment 149
Carriage, electric *82
Carriage, steam, Vivot's *295
Cartridge loader, Deven's *243, *255
Cast, geiatine plaster 195
Casts, sculptor's, at auction 291
Catacomba, Roman 312
Ceiling, Assembly chamber 149
Cellars, clean up 226
Cellars, damp 305
Cellulograph, the 371
Celestial world 2, 81, 224, 289
Cement floors 309
Cement for iron 35
Cement, liquid 114
Cement mortar, salt water for 3
Centenarian, an active 207
Chair and swing, Bastian's *356
Chair, hammock *372
Chair, life, preserving *340
Chair, out-door *116
Check row attachment *325
Chemical misnomers 256
Chess recorder, electric 97
China manufactories 192
Chimney flues, defective 243
Chimneys 128
Chlamydosaurus, the *715
Cholera, New York in danger 177
Cholera on Pacific Coast 226
Circuit closer, electric *114
Circuit, telegraph, long 146
City of New York, steamer *226
Cities, great, future of 90
Cities of half a million 97
Civilization, disgrace to 401
Clamp, Hathaway's *330
Clasp, Lewis' *276
Clay eaters, allegory 357
Clay eaters, Carolina 311
Clay eaters of North Carolina 405
Clay, is it a mineral ? 17
Cleat, portable, Hawley's *67
Clocks, alarm for *35
Clocks, self-winding 183
Cloth cutter, Ries' *307
Clothes frame *83
Cloud indications 147
Clouds, heights of 389
Club, electric *127
Coal, ton of, yield 359
Coast of England, changes 293
Cobra di capello *29
Cobwebs and how made 116
Cod, appearance of 206
Coffee, Mocha 300
Cohesion of lead *163
Collar bearings, friction 370
Collar button *164
Collar for cattle *267
Collisions at sea 248
Color blindness 67
Colors from plants 360
Combustion, influ. of atmos 137
Cumbustion, spontaneous 5, *214
Comet, South African *217
Comets of 1887 81
Commissioner to Brussels 342
Commutator for electric motor *325
Compass in iron ships 180
Conductivity, sonorous 196
Congress, geological 155
Conkling, Roscoe 277
Copper, electro-crystallization 356
Copperhead, the *103
Copy holder, Maas' *307
Copyright bill, new 304
Copyright, international 64
Copyright question 48
Coral reefs and islands 273
Corcoran, W. W 146
Cordilleres of Antilles, sinking 147
Cordilleras subsidence of 32
Corliss, George H 128, *343
Corn laws, German 52
Cot, folding *403
Cottons, British, in China 357
Court, Supreme, decisions 3
Counter, Harding's *83
Counting $150,000,000 241
Coupling, car, Brown's *131
Coupling car, Collins' *397
Coupling, car, Dawson's *149
Coupling, car, Reed's *196
Coupling, car Rutledge's *329
Coupling, car Sampson's *322
Coupling car, Wineland's *228
Coupling, pipe *116
Couplings, car, English *262
Courier, ss., engines of *146
Cowl, chimney, Cashill's *370
Cows, ten, hanged 298
Crane, wharf, 12-ton *275
Crane, 25-ton *19
Crazy, who is never ? 145
Crematory, Pere la Chaise *130
Crickets, devastation by 303
Crow roosts 184
Cruiser Atlanta 114
Cruiser Irene *279
Cruisers, British, new 267
Crystal pictures 160
Cudbear, Marents in 334
Currency, fractional 232
Cypress swamps, to utilise 153

D

Dam, Bear Valley 49
Dam, Gambon 358
Danew, J. B 21
Deafness, curious case 230
Deafness, curiosities of 357
Deaths, total in 1887 224
Decisions of Supreme Court 3
Desert, great American 198
Desk, calligraph *274
Destruction of our elms 405
Developing material 385
Developer, hydrokinone 225
Developer, pyro-hydroxylamine 129
Developer, pyro, improved 49
Diabetes, remedy for 60
Diamagnetism, theory of 405
Diamond, an unpolished 256
Diamonds, 650,000,000 worth 106
Diphtheria from poultry 242
Diphtheria, hydrogen perox. for 224
Disease communicated by animals 159
Ditch, Illinois, great 89
Dogs, field prize *327
Dogs, St. Bernard, rescues by 310
Door closer, Rodecap's *213
Door fastener, Kendall's *243
Draught equalizer, Fell's *211
Drawing on glass 57
Dress, winter, children's 240
Drill, hand, for miners *242
Drill holes, utilization 378
Drilling machine *259
Drink legislation 22
Drinking, moderate 96
Dumb bell therapeutics 56
Dyes from plants 261
Dyestuffs, poisonous 358
Dynamite gun 154, 284
Dynamite gun, new 278
Dynamite, uses of 260
Dynamo for ss. Victoria *41
Dynamo, principle of *238, *245
Dynamos, driving gear for *6

E

Eagle, sea, Pallas' *139
Earthenware, to perforate 161
Eclipse of moon 2
Eclipse of moon, total 51
Eclipse, solar, partial 87
Economy 10
Egg, ostrich, explosion of *249
Eggs, value for food 32
Electric bell *114
Electric carriage *82
Electric chess recorder 97
Electric circuit closer *114
Electric club *127
Electric conductors, soldering 25
Electric energy, cost 309
Electric energy from carbon 32
Electric fire engines 157
Electric light and vegetation 155
Electric light fires 320
Electric light in Asia 133
Electric light in medicine 370
Electric light plant, large 116
Electric light suits, Edison 320
Electric lights, fashionable 340
Electric lighting, early 338
Electric lighting of steamers *41
Electric lighting, ship *114
Electric patents 360
Electric machine, new 341
Electric motor *229
Electric motor, simple *195, *235
Electric night signals at sea 404
Electric railways 102
Electric science, progress 340
Electric sewage process 85
Electric speed indicator *239
Electric street car, Julien 32
Electric sunstroke 99
Electric torpedo boat *210
Electric type writer *73
Electric welding 183
Electric wires, danger 361
Electric wires, overhead 30
Electric wires, underground 326
Electric wires, supervision 274
Electrical litigation 40
Electrical notes 75
Electricity, atmospheric 293
Electricity, atmosph., discharge 710
Electricity, convection of 23
Electricity, static, experim'ts *308
Electricity versus horses 330
Electro-magnet, experiments *214
Electro-magnet, uses of 260
Electro-metallurgy 23
Electrolysis of water *23
Elements not patentable 119
Elevator, hydraulic *6
Elevators, American 103
Elevators, hydraulic *98
Elms, destruction of our 405
Emergency, lesson of 177
Emperor of Germany 384
Emulsion, kerosene 144
Engine, Corliss, 2,500 h. p *342
Engine foundations 726
Engine, large, breaking of 177
Engine, petroleum, new *277
Engine, rotary *280
Engine, steam *297
Engine, Yankee, first 371
Engines, fire, electric 157
Engines, hoisting *205
Engineers, naval 55
Engines of ss. Courier *146
Engines of Vesuvius *313
Engineer, life of at sea 179
Engineer wanted 368
Engineer's life at sea 136
Engineering in Japan 273
Envelope flap, new 279
Envelopes, safety 73
Execution by electricity 407
Exhibition, Barcelona 276
Exhibition, French, 1889 ..... *150
Exhibition, "Three Americas" 404
Expansion, triple 193
Expedition, African *300
Experiment, ingenious 164
Experiment, Foucault's *214
Experiments, electro-magnetic *214
Experiments in static electricity *23
Experiments on dynamo *244
Experiments with the dynamo *233
Explosion, unlooked for 261
Explosive, a new 303, 364
Eye, to remove particles from 66
Eyes, care of the 149

F

Fair, international, Buffalo, N.Y. 9, 5
Fan for cars *287
Fastening for shoe laces *243
Faucet, Rodman's *51
Fauna of the tomb 286
Feast of the Cycle, Aztec 360
Fence and fence post *370
Fender spar, Rankin *196
Ferrule for fishing reels *6
Ferrule, Hawley's *18
Figures, trick with 353
Filaria in a dog 113
Films from paper, stripping 356
Filter, Davis *274
Filtration by machinery 368
Filtration of water 353
Fire alarm, West's *196
Fire engines, electric 157
Fire escape for schools 388
Fire escape, McMullin's *373
Fire extinguisher, Durant's *82
Fire extinguisher for cars *7
Fire precautions in Berlin shops 52
Fires, electric light 340
Firemen, asbestos-clothed 57
Fire proof building material 50
Fishes, fecundity of 153
Fishes, live, preservation 57
Fishes, subterranean 286
Fishery question, Canada 240
Float handle, mason's *31
Flood in China 26
Floors, cement 309
Floors, deafening 313
Floors, waxing 149
Flour dust dangerous 201
Flour product of a week 321
Flour production of West 145
Flowers, city 306
Flowers for the shade 308
Flowers, preservation of 135
Fluorine a universal solvent 34
Focus of losses 265
Fog in London 101
Food laboratory, Goshen *213
Force, conserve your 137
Forest, a submerged 273
Forests, improvement of 98
Forests, timber, in Siam 147
Forging machine 28
Forging press, gigantic 102
Fortifications, modern 257
Fortress, rock, Cingalese 280
Foundation, repairing *191
Fox, cunning of the 152
Frederick the Third 384
Frost on windows 73
Fruit jar, John's *291
Fuller, Chief Justice *18
Furnace grate 1

G

Garbage, burning 305
Garment protector *260
Garments, renovating *229
Garnets, New York 311
Gas, carbonic acid, action 67
Gas, compressed 260
Gas, compressed oil 333
Gas, natural 49
Gas, natural, Chicago 128
Gas, natural, burning *265

Gas, natural, for locomotives ... 89
Gas, natural, how burned ... 194
Gas, natural, in China ... 242
Gas, natural, in Kentucky ... 226
Gas, new ... 51
Gas pipe wrench ... *219
Gas residuals, value ... 190
Gas, water, in Massachusetts ... 386
Gas wells, Fort Scott ... 78
Gas well, Ohio ... 345
Gasoline, dangers of ... 282
Gasoline stoves ... 310
Gate, burning's ... *125
Gate, Hatcher's ... *206
Gate, improved ... 270
Gate Spring, Clough's ... *164
Gauge, extension ... *195
Gauge glasses, to clean ... 30
Gauge, saw, Nixon's ... 144
Gauge, shingling, Sane's ... *270
Gauge, water ... *264
Gear, driving, for dynamos ... *8
Gear for vehicles ... *261
Gear, vehicle, Gardiner's ... *219
Geography, teaching ... *274
Geological phenomenon ... 82
Geologists, congress of ... 139
Geyser, Yellowstone, great ... 345
Gilmore, Gen. Q. A ... 373
Glass manufactories ... 142
Glass, orange, substitute ... 286
Glass, ruby colored ... 295
Glass windows, to keep frost off ... 71
Glazes for porcelain ware ... 389
Globules in spheroidal state ... 234
Glue, how to use ... 374
Glue, moisture proof ... 46
Glue, vegetable ... 126
Glycerine patent ... 218
Glycerine soap ... *31
Glycerine, uses of ... 247
Goat, wild, new ... *283
Gold, chloride, new ... 194
Gold fields, South Australia ... 46
Gold mines of Mancharia ... 382
Gorilla, live, in London ... *146
Government meddlesomeness ... 42
Governor, air pump ... *235
Grain bags ... 350
Grain weigher, Morris' ... *217
Grain weighing machine ... *127
Gramophone, the ... 222
Grape seed extractor ... *234
Grate, Dunning's ... *126
Grate, furnace ... *79
Gray, Asa ... *97
Great Eastern, lighting ... *114
Great Eastern, loss in value ... 67
Greenland, exploration of ... 226
Grinding machine, Comstock's ... *101
Grubber, improved ... *30
Guard-rail for wheels ... *81
Gum, a new ... 207
Gum arabic substitute ... 62, 126
Gun, dynamite ... 152, 275, 363
Gun, great, bursting of ... 147
Gun, Maxim, trial of ... 370
Gun, new and powerful ... 357
Gun, steel, casting ... 46
Guns, built-up failure ... 311
Guns, fifteen mile ... 151
Guns, heavy, abroad ... 110
Guns, internal strain of ... 239
Guns, new, for U. S. Navy ... 330
Guns of the Rumbow ... *118
Guns, 38 pounder ... 35
Gunboats, U. S. launch ... *287

H

Halation, preventing ... 366
Halls, costly, N. York ... 382
Hammer, steam, Kaiser and ... 68
Harbor, New York, improvem'ts ... 79
Hassard, John R. G. ... 207
Hauling machine, endless rope ... *268
Haupt, Lewis M ... *119
Hay feeder, Hotchkiss' ... *111
Hay loader and stacker ... *104
Hayden, F. V ... *2
Headache, sick ... 247
Health Board, and stables ... 373
Health, public ... 286
Heater, car, Wardle's ... *221
Heating arrangements, Utopian ... 131
Heating cars by steam ... 46
Heating in compressed air ... *239
Helfrin, Michael ... 206
Hektograph sheets ... 46
Hellebore ... 254
Hero of the throttle ... 382
Hinge, Beer's ... *310
Hinges, door, creaking ... 179
Hoisting engines ... *241
Hoisting machinery ... *214
Holly Manufacturing Co ... *2
Homes, own your ... 383
Hoof expander ... *272
Horse, adventures of ... 219
Horse detacher ... *196
Horse, sagacity in ... 117
Horse, steam, or electricity ... 146
Horses, fire, school for ... 286
Horses, Norwegian ... 207
Horses, protection vs. fire ... 46
Horses, wild, of Nevada ... 127
Horseshoe, Howell's ... *249
Horseshoe pad, Taylor's ... *67
Hospital furnishing, prizes for ... 210
Hotel, Brighton Beach ... *230
Hotel, great, moving ... 198
House, artistic, cheap ... *162
House poison ... 46
Hydrogen, hydride of ... 31
Hydrophane ... 35

I

Ice breaking vessel ... 194
Ice creeper and skate ... *98
Ice, packing for ... 317
Inclinometer, improved ... *135
Incubation in Egypt ... 60
Ink, faded, to restore ... 9
Insects, destruction by ... 430
Insect posts ... 269
Insects, scale ... 144
Inventions, agricultural ... 11, 26, 58, 187, 151, 170, 198, 203, 218, 234, 266, 282, 291, 295, 394, 408
Inventors, chances for ... 286
Invention, dependence on ... 9
Inventions, engineering ... 11, 26, 42, 58, 74, 91, 107, 122, 139, 154, 170, 202, 218, 234, 250, 266, 282, 298, 314, 331, 346, 362, 378, 394, 409
Inventions, naval, recent ... 17
Inventions, miscellaneous ... 11, 26, 42, 58, 74, 91, 107, 122, 139, 154, 170, 186, 202, 218, 234, 250, 266, 282, 298, 314, 331, 346, 362, 378, 394, 409
Invention of the power loom ... 47
Inventive, be ... 367
Inventor, professional ... 270
Inventors, American, chance for ... 100
Irene, cruiser ... *279
Iron, action of sea water ... 64
Iron, cement for ... 23
Iron, electrolytic deposit ... 239
Iron, foundry, tests for ... 286
Iron, paint for ... 382
Iron, pig, making with gas ... 73
Iron, preservation of ... 46
Isinglass ... 286
Island, a new ... 211
Italia, Ironclad ... *219
Ivy for walls ... 254
Ivy poisoning ... 10, 37, 204, 220, 194, 217, 230, 245

J

Jeddah and Mecca ... 245
Jewels, phosphorescent ... 203
Jewelry, repairing ... 86
Joints, secure the loose ... 5
Jupiter and Beta scorpii ... 260
Justice of Supreme Court ... 260

K

Kerosene as anti-incrustator ... 71
Kerosene emulsion ... 144
King of Prussia ... 160
Kites, Chinese ... *194
Knapsack, Merriam's ... *204
Knife grinder, Comstock's ... *121

L

Labor, department of ... 366
Labor troubles, six years' ... 53
Laborers, Japanese ... 78
Laboratory, Loomis ... 146
Lacharme, Francois ... 9
Ladder, step, improved ... *211
Lamp, incandescent, phenomena ... 144
Lamp lighting with snow ball ... 198
Lamp, night, Aladdin ... *245
Lamp, magnesium ... 304, 324
Lamps, arc, carbons for ... 22
Lamps, flash, magnesium ... *219
Lamps, improved, needed ... 250
Lamps, incandescent, reduct. of light ... 25
Lantern, magic, portable ... *201
Lantern slide mats ... 311
Lantern slides, intensifying ... 46
Lantern slides, marking ... 3
Lard, adulterated ... 207
Lards, adulteration of ... 376
Lard, what made of ... 145
Lasting tool, Jacque's ... *231
Lathe, engine, 16-inch ... *216
Launch, naphtha ... 254
Law, patent, for Switzerland ... 278
Laws of Newton ... *197
Laws, patent, amendment of ... 112
Lawn mower, new ... *211
Lead, cohesion of ... *195
Leaf prints, how to make ... 282
Leakage in pipes, detecting ... 3
Lectures in science teaching ... 113
Leghorns, good word for ... 224
Lenses, cleaning ... 366
Lenses, focus of ... 366
Leprosy ... 213
Level, improved ... *151
Leather board for shoes ... 67
Lick, James ... *132
Life boat, Anielle's ... *53
Life boat, Lockealy's ... *53
Life boat, new ... 335
Life saving apparatus, fire ... 225
Light, electric, and vegetation ... 151
Light, electric, in Asia ... 139
Light, electric, in medicine ... 370
Light, from incandescent bodies ... 85
Light, magnesium powder ... 321
Lights, electric, fashionable ... 100
Lightning, pervasiveness ... 217
Lightning, protection from ... 313
Lightning, remarkable escape ... *226
Lime for sorghum juice ... 63
Linen, whitening ... 254
Linoline ... 146
Literature, condensed ... 366
Liver, torpid, remedy for ... 72
Lizard, horned ... *169
Lock and alarm ... *227
Lock, nut, new ... *212
Lock, nut, Bennie's ... *206
Lock, nut, Vaughan's ... *254
Locks of Panama Canal ... *186
Locomotive, lost ... 244
Locomotive, road, postal ... 78
Locomotive wheels, polygonal ... 31
Locomotives, collision of ... *222
Locomotives run with nat. gas ... 46
Loom, power, invention of ... 64
Looms, tensine device for ... *226
Lumber, raft, destruction of ... 16

M

Machines, sewing, managing ... 422
Madder ... 71
Magic, Indian ... *227
Magnesium ... 197
Magnesium flash lamps ... *190
Magnesium, igniting ... 139
Magnesium in electric batteries ... 51
Magnesium lamp ... 238
Magnesium lamp, Gratael's ... 190
Magnesium powder burning ... 49
Magnesium powder light ... 321
Magnet, great, King's ... *15
Magnets, action on liquids ... 25
Mail bags, improved, needed ... 290
Mainia ... 195
Man, coming, educate ... 239
Man, flying ... 191
Manganese in steel ... 273
Mango tree trick ... *227
Mantel, sheet metal ... *95
Maple sugar, patent ... 8
Mars, opposition of ... 224
Mars, satellites of ... *266
Mastodon, the ... *79
Masts, hollow ... 113
McCartney, Daniel ... *278
Meat, preservation by sugar ... 46
Mechanical progress ... 117
Mechanics, trained ... 344
Medicines, patent ... 212
Memory, tricks of ... 56
Metal rolling machine ... 273
Metals, impurities in ... 290
Metallurgy, electro ... 25
Meter, water, siphon ... *218
Meteor, a ... 226
Meteor, remarkable ... 260
Mica, uses of ... 294
Microscopy ... 434
Military appliances, modern ... *146
Milky way, the ... 260
Milk inspection, Massachusetts ... 78
Mill, paint, new ... *188
Mill, rock, Sturtevant ... 310
Mill, saw, floating ... 372
Milling machine ... 69
Milling, water power for ... 294
Mineralogical club, new ... 362
Minerals, notes on ... 366
Mines, gold, Manchuria ... 260
Mining trust schemes ... 327
Mitchell, Prof. Maria ... 139
Monkey, Cuban ... *71
Monkey, trick of ... 97
Monument, Washington ... 105
Moon and Saturn, conjunction ... 3
Moon, curious ideas about ... 344
Moon, eclipse of ... 1
Moon, photography of ... 10
Moon, total eclipse of ... 16
Mortar, cement, salt water for ... 8
Mortar, colored ... 99
Mortising machine attachment ... *8
Mortar materials, testing ... 228
Mosquito, the ... 399
Mosses, absorption of water ... 132
Moths, house ... 353
Motor, electric ... *239
Motor, electric, simple ... *165, *235
Motor, Keely, in court ... 204
Motor, thermo-, Hargreave's ... *134
Motor, windmill ... *235
Mountains, Russian ... *316
Mower, lawn, new ... *211
Mucilage bottle, Pearl ... *260
Mucilage, flexible ... 17
Music chart, Mason's ... *51, 228
Myopia ... 58

N

Nail tongs, Wood's ... *27
Naphtha, launch, the ... 286
Naphtha springs, Baku ... 79
Natural history notes ... 133, 149, 256
Naval notes ... 400
Navy, French ... 300
Navy, steam, fathers of ... 68
Negatives, dim ... 65
Neighbor, southern, progress ... 160
Niagara, utilizing ... 327
Nickel plating ... 10
Nickel plating solution ... 177
Nitrogelatine experiments ... 279
Nitrogen chloride ... 195
Nitro-glycerine, careless handling ... 281
Nobel, Ludwig ... 376
Nose, source of our woes ... 70
Notes, miscellaneous ... 382
Nothing new ... 264
Nut lock, new ... *212
Nut lock, Rennie's ... *200
Nut lock, Vaughan's ... *156
Newton's laws ... *197

O

Oar and oar lock ... *256
Observatory, Dearborn ... 398
Observatory, Denver ... 398
Observatory, Lick ... *150, *273
Observatory, the Smith ... 398
Odors, nature of ... 294
Oil, cod liver, substitute ... 248
Oil distributing device ... 46
Oil wells, Colorado ... 362
Oils, essential, notes on ... 201
Okonite insulated wires ... *115
Onions, medicinal qualities ... 161
Opium culture, Persia ... 260
Oracle, magnetic ... *5
Orchil, Magenta in ... 224
Ordnance, internal stresses in ... 177
Ores, apparatus for examining ... *281
Ostrich egg, explosion of ... *249
Oysters, cultivation of ... 306

P

Packing for ice ... 117
Paddle-belt, Silsby's ... *291
Paint brushes, clamp for ... *227
Paint for iron ... 392
Paint mill, new ... *182
Paints, how obtained ... 102
Panama Canal ... 168
Panama Canal, locks of ... *166
Panama Canal, ship railway ... 80
Paper bottles ... 197
Paper for cleaning lenses ... 226
Paper making, new process ... 266
Paper pulp, cotton stalk ... 288
Paper, transfer ... 73
Paper, wood fiber for ... 3.5
Parasites on live stock ... 260
Paris as a seaport ... 7
Passion flower, value of ... 346
Pasteur treatment ... 140
Patent, barbed wire ... *134
Patent, Bell telephone ... 192
Patent bill, Indiana ... 82
Patent law for Switzerland ... 288
Patent laws, amendment of ... 112
Patent, maple sugar ... 8
Patent medicines ... 212
Patent office staff, increase ... 242
Patent protection, Edison on ... 177
Patent rights and denial profession ... 401
Patent symposium ... 260
Patent, sorghum sugar ... 132
Patent, sugar, Swenson's ... 63
Patent, the glycerine ... 236
Patent tricks, old and new ... 272
Patents as investments ... 201
Patents by joint inventors ... 2
Patents, decisions relating to ... 96
Patents, electric ... 22
Patents, report on ... 32
Patina for brass and bronze ... 46
Perry, Commodore M. C ... 34
Petroleum engine, new ... 377
Petroleum, origin of ... 42, 155
Petroleum, solid ... 197
Phonograph, exhibit of ... 228
Phonograph, perfected ... 214
Phonograph, progress of ... 230
Phonoplex telegraphy ... *180
Photo-stereotype printing ... 197
Photochronoscopic method ... 34
Photographic notes ... 2, 49, 65, 129, 161, 225, 226, 314, 321, 385
Photographic plates ... 200
Photographs, exhibition of ... 271
Photographs faded ... 197
Photographs, indoors ... 161
Photography as a detective ... 102
Photography, beetle ... *406
Photography, lunar ... 10
Photography of the invisible ... 121
Photophone, Edison ... 246
Physical and chemical change ... *281
Pianos and organs, Mason & Hamlin ... *438
Pictures, crystal ... 118
Pictures, shadow ... *150
Pigeons, carrier, naval ... 230
Piles, timber and the teredo ... 110
Pipe coverings ... *98
Pipe coupling ... *116
Pipe cutter, pew ... *95
Pipes, leaks in, detection ... 3
Pipes, steel ... 94
Pipes, underground, large cities ... 230
Pirates, American and British ... 122
Piston ring packing ... *227
Planets now visible ... 224
Planets, position of in February ... 48
Planets, position of in March ... 240
Planets, position of for April ... 256
Planets, position of for May ... 256
Planets, position of in June ... 256
Plant, the smallest ... 256
Plants, aluminum in ... 110
Plants, chemistry of ... 339
Plants, dye colors from ... 201
Plants, hot water for ... 206
Plants, parts of, reproduction ... 256
Plants, preserving ... 198
Plate straightening machine ... *234
Plates, wet, purple tones on ... 230
Plating, nickel ... 10
Plating, nickel, solution ... 177
Plating, silver, solution ... 282
Plating with aluminum ... 309
Platinum, gaseous explosions ... 191
Platinum in sun's atmosphere ... 17
Pleiades, the ... 260
Plow attachment ... *227
Poison, an African ... 25
Poison, house ... 46
Poison in respired air ... 179
Poison, typhoid ... 67
Ponies, wild ... 60
Porcelain shot ... 5
Porphyry quarries, Egyptian ... 8
Portraits, crayon, to make ... 241
Portraits, making indoors ... 161
Postal arrangements with Canada ... 241
Postage, reduce the ... 210
Poultry, winter care of ... 40
Power, electric transmission of ... 401
Power from compressed air ... *49
Press, copying, simple ... 103
Press, forging, large ... 252
Press, printing, self-inking ... 252
Presses, hand and power ... *50
Printer, centenarian ... 238
Printing, estab., Chinese, old ... 354
Printing, process, new ... 127
Prints, black, on bromide paper ... 65
Prints, blue ... 225
Prints, lead, how to make ... 282
Prints, silver, toning ... 161
Profits, sharing with employes ... 256
Progress, age of ... 368
Projectiles, steel armor piercing ... 23
Propelling, materials for ... 256
Prophecies, for 1888, Beaner's ... 40
Pruning implement ... *217
Public works, reorganization ... 288
Pump, improved ... *88
Pumping machinery ... 230
Puzzle, novel ... *23
Pyrofuscine ... 18
Pyrogravure ... 258

Q

Quarantine establishment ... 160
Quartz, electrical attraction ... 10
Quebracho, extract of ... 160
Quilter, Davis ... *181

R

Rabbits, Australian ... 228
Rabbits, jack, driving ... 131
Raft, lumber, destruction of ... 16
Raft, timber, another ... 273
Rail loading machine ... 238
Rail pad, improved ... *247
Rails, Bessemer steel ... 366
Railroad, elevated, Kansas city ... 366
Railroad law, Iowa ... 194
Railroad switch ... *194
Railroad tie, metallic ... 366
Railroad, two-foot gauge ... 194
Railroad wagon ... *102
Railway appliances, needed ... 366
Railway car, passenger ... *241
Railway chair and tie ... 366
Railway line, Mexican, new ... 366
Railway line, new ... 146
Railway signals ... 179
Railway, ship, Panama Canal ... 80
Railway, ship, Tehuantepec ... 404
Railway, trans-Caspian ... 406
Railway switch, Baldwin's ... *223
Railway, San Salvador ... 207
Railway ship, Venetian ... 243
Railway tie, Hawley's ... *210
Railway wreck, remarkable ... 366
Railways, American, progress ... 17
Railways and ships, our ... 8
Railways, electric ... 102
Railways, Tasmanian ... 217
Rain water cut off ... 274
Raphides, functions of ... 138
Rat plague in China ... 225
Rats, incendiary ... 226
Rats, stopper for ... 220
Rattlesnake, H. M. S. ... *388
Ratchet and lever mechanism ... *72
Register, hot air, Roseman's ... *207
Researches, prehistoric, Spain ... 72
Reservoir, great, in Ceylon ... 275
Residence ... *271
Residence, suburban ... *245
Results, unlooked for ... 207
Rheumatism ... 410
Rifle, military, modern ... 42
Ring, finger, removing ... 85
Rings as evidence of age of trees ... 327
Rock drill, Ingersoll ... 136
Rock mill, Sturtevant ... 238
Rolling machine, Esmond's ... 273
Roots, secretion from ... 160
Rubies, artificial ... 198
Rum, Roman, Helma ... *261

S

Saccharine ... 247
Saccharine, use of ... 194
Safes, unsafe ... 226
Salt water for cement mortar ... 8
San Salvador railway ... 207
Sand blasting ... 130
Sand freezing process ... 149
Sash weights from tin cans ... 251
Saw holder, Slater's ... *207
Saw gauge, Nixon's ... *27
Saw gummer, Romer's ... *205
Saw mill, floating ... 301
Saw table adjuster ... *210
Saw mill, floating ... 272
Sawing machine, Frank's ... *228
School, technical, for girls ... 160
Seal on deeds, what use? ... 276
Seals' stomachs, stones in ... 121
Sea, calming with oil ... *406
Sea sickness, antypyrin in ... 2, 301
Securite ... 260
Secrets, stolen ... 87
Seed tester, Goetz's ... 51
Sense organs, reciprocal influence ... 52
Separator, bone black ... *245
Sepharvaim, explorations at ... 249
Serpent, sea ... 217
Sewage, process, electric ... 55
Sewers of Paris ... 82
Scale, counter, new ... *207
Scale, pocket, Watts' ... *211
Scale insects, remedy for ... 145
Scale, weighing, Thomson's ... *149
School for fire horses ... 240
School, training, manual ... 242
Schools, fire escape for ... 260
Schools, New York city ... 100
Science, study of ... 219
Science, teaching, lectures in ... 112
Scientific apparatus, mfr ... *226
Scissors and file ... *61
Scrape, using up ... 6
Shadow pictures ... *120
Sheep, African ... *55
Sheep bugs ... 167
Sheepskins, to tan and color ... 403
Shelving, movable, Comfort's ... *19
Ship, aerial, Morgan's ... 6
Ship Atlanta ... 114
Ship, four million dollar ... 291
Ship of war Italia ... *219
Ship of war Texas ... 267
Ship railway, Venetian ... 224
Ships' bottoms, corrosion ... 322
Ships and railways, our ... 8
Ships of war, tests for ... 144
Ships, turret, two new ... 18
Shoes, leather board for ... 67
Shovel, snow, steam ... *277
Shovels, steam, rotary ... 178
Sieve tubes ... 266
Signal, alarm, railway crossing ... *40
Signal, block, new ... *229
Signals, railway ... 179
Silk, vegetable ... 404
Silver nuggets, large ... 34
Silver plating, solution ... 392
Silver prints, toning ... 161
Silver, Thomas ... 295, *311
Sizes, three ... 212
Skate and ice creeper ... *98
Sky, morning ... 2
Sleeve stay, Nichols' ... *6
Sleeve stay, Terry's ... *212
Sleigh knee, new ... *228
Slides, lantern, intensifying ... 42
Slides, lantern, making ... 3
Smelting process ... 86
Snakes in India ... 222
Snow shovel, steam ... *277
Snow storm, the great ... *178
Soap bubbles ... 207
Soap, glycerene ... 310
Soapstone paint for iron ... 282
Society, Royal, Conversazione ... 257
Sodium bicarbonate ... 266
Sorghum sugar patent ... 132
Sound, diffraction of ... 114
Sound, re-enforcement ... *195
Spark arrester ... *220
Spectrum, solar, map of ... 200
Speed indicator ... *210
Spectroscope, Lick observ ... *274
Spider, Bucharest ... 130
Spiders and ants, aged ... 82
Spindles, banding, Binn's ... *170
Spring for side bar vehicles ... *228
Spring, gauge, Clough's ... *164
Spring, naphtha remarkable ... 129
Stable, fireproof ... 197
Stable, Mr. Bergen's ... *170
Stand, show ... *174
Star, the nearest ... 114
Stars, age of the ... 226
Stationery, cheap ... 46
Steam boiler for feed ... *150
Steam boiler, Gentry's ... *170
Steam boiler, Leighham's ... *170
Steam carriage, Vivos's ... *255
Steam engine ... 257
Steam engine, large, breaking ... 177
Steam jackets ... 178
Steam shovels, rotary ... 178
Steam snow shovel ... *277
Steam tricycle ... *102
Steamers, Atlantic, speed ... 21
Steamer City of New York ... *178
Steamers, fast and slow ... 234
Steamships, Atlantic, fastest ... 404
Steamship, lake, new ... 24
Steel, blow holes in ... 46
Steel, experience with ... 209
Steel, Hecla ... 178
Steel, manganese in ... 273
Steel manufacture ... 226
Steel pipes ... 94
Steel, polishing ... 119
Steel rails, Bessemer ... 81
Steering gear, locking ... 270
Steering gear, Snelling's ... *223
Stereographs, photo-microscopic ... 32
Stewart, Balfour ... 224
Stomata, importance of ... 160
Stones in seals' stomachs ... 121
Store and stable, design for ... *271
Store block ... *102
Storm, snow, the great ... 300
Stoves, car ... 178
Stoves, gasoline ... 310
Streams, small, power ... 34
Stresses, internal, in ordnance ... 177
Strikes in the United States ... 345
Stub holder, check book ... *197
Stud, collar ... *184
Stump puller, simple ... *247
Succi, the fasting man ... 377
Sugar from coal tar ... 247
Sugar, maple, patent ... 8
Sugar patent, Swenson's ... 63
Sugar refinery, great ... 366
Sulphur in vegetation ... 167
Summer? will it be hot ... 276
Sun an incendiary ... 226
Sun, partial eclipse of ... 81
Sunstroke, electric ... 96
Suspender buckle, Walter's ... *220
Swamp, cypress, to utilize ... 130
Switchboard, telephone, great ... 402
Switch, portable ... *118
Switch, railroad ... 234
Switch, railway, Baldwin's ... *223
Switch stand and signal ... *270
Swords, tests for ... 98
Syracuse Malleable Iron Co ... *67

T

Table, receiving, for presses ... *240
Tapeworm, remedy for ... 37
Taste, young ... *229
Taxidea, Gass of agents ... 275
Tea, sensitiveness of ... 42
Tea trade, China, decadence ... 72
Tension device for looms ... *228
Tent, folding ... *238
Telegraph across Luan-ho ... 30
Telephone case, Bell ... 192
Telegraph circuit, a long ... 146
Telegraph, first appropriation ... 225
Telegraph in Mexico ... 21
Telegraph poles, preserving ... 51
Telegraph vs. telephone ... 261
Telegraph, Western Union ... 69
Telegraph wires in Chili ... 130
Telegraphy, government ... 97
Telegraphy, long distance ... 277
Telegraphy, new system ... *180
Telegraphy, train ... 212
Telephony, long distance ... 225
Telephone, Reis ... 68, 229
Telephone transmitter, water jet ... 261
Telescope, Lick observatory ... *273
Telescope, million dollar ... 32
Tether, stock, Overaker's ... *250
Test, memory, interesting ... 408
Testing waste pipes ... 402
Texas, ship of war ... 267
Theaters, cooling air of ... 204
Thermo-motor, Hargreave's ... *134
Thermometer scales ... 72
Thill coupling, Knupp's ... *51
Things, four, worth knowing ... 54
Things, little, that kill ... 34
Thunder storm, an April ... 240
They should ... 259
Ticket holder for cars ... *242
Tie, chair and fish plate ... *201
Tie, railroad, metallic ... *195
Tie, railway, Hawley's ... *210
Timber forests in Siam ... 147
Timber raft, another ... 272
Time in which we think ... 81
Time keeping in Greece and Rome ... 136
Tin cans, utilizing ... 213
Tin plate, crystallized ... 65
Tinning by immersion ... 309
Tinning industry ... 17
Toboggan slides ... *239
Toilet implement ... *67
Toilet stand, Lowrie's ... *229
Tongs, nail, Wood's ... *67
Toning silver prints ... 161
Tools, small, annealing ... 254
Tooth brush, novel ... *210
Torpedo boat, Nordenfelt ... 38
Torpedo boat, Waddington ... *310
Torpedo boat Rattlesnake ... *288
Torpedo boats in a gale ... 2
Torpedo boats, concealment of ... 33
Torpedo boats, land ... 20
Torpedo fired by lightning ... 378
Torpedo shell, large ... 243
Tower, the Eiffel ... *139
Toy, scientific ... 95
Trade mark decision ... 80
Trade mark difficulties ... 130
Trade mark prosecutions ... 210
Trade markets, English ... 52
Trade unions, Chinese ... 82
Training of Greeks and Romans ... 176
Trainmen's safety, appliances ... 252
Tramcar, compressed air ... 215
Tramways, cable ... 122
Transplanter, Coon's ... *267
Trap, animal, Moxley's ... *212
Trap for animals ... 238
Trees, age of ... 327
Trees and flowers in Central Park ... 338
Trees, milk and butter ... 290
Trick, mango tree ... *227
Trick with figures ... 384
Tricycle, Frie's ... *34
Tricycle, steam ... *102
Tub, butter, Howe's ... *243
Tubes, spirally welded ... *277
Tunnel, a long ... 301
Tunnel, Hoosac ... 246
Turning tools ... *178
Twilight, colors of ... 378
Twine holder, Bull's ... *272
Type writer, electric ... 73
Type writer, Morris' ... *34
Type writer of 1889 ... 239
Typhoid poison ... 37

U

Umbromania ... *120

V

Vaccination, anti ... 19
Vaccination in the harem ... 401
Valve plugs, truing ... *146
Valves, throttle, operating ... *217
Varnish, oil, to remove ... 373
Vase, Pascal's ... *73
Vegetation and electric light ... 153
Vegetation, Central Park ... 240
Vegetation, sulphur in ... 167
Vehicle gear, Gardiner's ... *19
Vehicle, improved ... *93
Venezuela, Amer. trade in ... 160
Ventilation, insufficient ... 226
Ventilation of sick beds ... 250
Ventilator, Cashill's ... *270
Ventilator, Werner's ... *126
Ventilator, window ... *272
Ventriloquism ... 49
Venus, satellite of ... 81
Vessel, ice-breaking ... 194
Vest protector ... *210
Vesuvius, engines of ... *213
Vesuvius, gun boat ... *287
Vibration, experiment on ... 104
Volapuk ... 23
Voting, novel ... 263

W

Wages, American and foreign ... 113
Wages and living forty years ago ... 40
Wages here and in Great Britain ... 253
Wagon, farm and road ... 19
Wagon railroad ... *122
Waite, Chief Justice ... 138
Walls, dryness of ... 215
Walls, washable, in cottages ... 50
Walnut, black, imitation ... 197
Wants, curious ... 230
Watch, non-magnetic ... *222
Water, calcareous ... 99
Water closet box ... *98
Water, decomposition of ... *226
Water, electrolysis of ... *23
Water, filtration of ... 353
Water gas in Massachusetts ... 266
Water gauge ... *66
Water, hot, Boston ... 230, 245
Water in organic subst ... 211
Water meter, siphon ... *18
Water pipes, thawing ... 200
Water power for milling ... 254
Water, right to use of ... 142
Water sports ... 249
Water supplies, good ... 311
Water supply, new, for Paris ... 178
Water works, Cardiff ... 49
Waterfalls, great ... 134
Waterproofing process ... 197
Watt, James, birthplace ... *117
War ship Italia ... *219
War ships, tests for ... 144
War ship Texas ... 267
War vessel, queer name ... 240
Washer, self-oiling ... *99
Wasp stings, innocent ... 338
Waste ... 86
Waves, quieting ... *226
Wax for wood floors ... 149
Wax paper process ... 106
Weather strip, Rankin's ... *235
Well, a blowing ... 130
Well, artesian, largest ... 389
Well, artesian, Paris ... 294, 344, *354
Well, deep, at Aledo, Ill ... 400
Well, driven, case ... 37
Wells, artesian, New York ... 108
Wells, oil, Colorado ... 352
Welding and brazing ... 90
Welding, electric ... 130
Wheat crop of world ... 48
Whip and cane, combined ... *67
Whipple, Squire, death of ... 224
William I. of Prussia ... 160
Wind and weather permitting ... 7
Window sill, Brener's ... *83
Windmill motor ... *223
Window ventilator ... *272
Wire, barbed, patent ... 18
Wires, electric, danger ... 361
Wires, electric, overhead ... 20
Wires, electric, supervision ... 274
Wires, electric, underground ... 226
Wires, insulated ... *115
Wires, telegraph, in Chili ... 130
Wires, underground, New York ... 66
Women, successful ... 220
Wood fiber for paper ... 238
Wool fiber, action of water ... 221
Work and wages in Holland ... 288
Workshop management ... 190
Wren, the canon ... 263
Wrench, gas pipe ... *19

Y

Yoke, neck, fastening ... *242
Yellow River of China ... 265
Yorktown, gunboat, launch ... *287